

ABSTRACT

PREPARATION OF STABLE CARBON NANOTUBE DISPERSIONS IN LIQUIDS

The introduction of nanotubes in a liquid provides a means for changing the physical and/or chemical properties of the liquid. Improvements in heat transfer, electrical properties, viscosity, and lubricity can be realized upon dispersion of nanotubes in liquids; however, nanotubes behave like hydrophobic particles and tend to clump together in liquids. Methods of preparing stable dispersions of nanotubes are described and surfactants/dispersants are identified which can disperse carbon nanotubes in aqueous and petroleum liquid medium. The appropriate dispersant is chosen for the carbon nanotube and the water or oil based medium and the dispersant is dissolved into the liquid medium to form a solution. The carbon nanotube is added to the dispersant containing the solution with agitation, ultrasonication, and/or combinations thereof.